Recent Fuel Price Trends, Market Overview & Contributing Factors

Petroleum Market Advisory Committee Meeting

Energy Institute at Haas

Berkeley, California

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Presentation Overview

- Purpose
  - Provide an overview of recent fuel price trends
  - Discuss factors contributing to elevated prices
- Current snapshot of fuel prices
- California fuel prices usually more expensive
  - Differences and level of taxation
- Recent trends for gasoline prices
- West Coast market comparison
- Review of factors contributing to elevated prices
  - Refinery operations
  - Inventory levels
  - Imports and exports
- Fuels-Under-the-Cap tracking
- Closing remarks

Snapshot - Retail Prices Declining in CA

- CA retail gasoline prices are slowly dropping
- California
  - **Down** 27.3 cpg since last month and **down** 3.8 cpg since last week
  - 68.1 cpg **lower** than same time last year
- Washington
  - **Up** 13.6 cpg since last month and **up** 1.9 cpg since last week
  - 81.1 cpg **lower** than same time last year

National Average Prices

Prices updated as of 6/29/2015 3:45am

	Regular	Mid	Premium	Diesel
Current Avg.	$2.773	$2.989	$3.180	$2.848
Yesterday Avg.	$2.775	$2.988	$3.179	$2.859
Week Ago Avg.	$2.792	$3.001	$3.190	$2.860
Month Ago Avg.	$2.736	$2.945	$3.130	$2.885
Year Ago Avg.	$3.678	$3.862	$4.031	$3.905

California Average Prices

Prices updated as of 6/29/2015 3:45am

	Regular	Mid	Premium	Diesel
Current Avg.	$3.449	$3.572	$3.680	$3.190
Yesterday Avg.	$3.450	$3.575	$3.681	$3.191
Week Ago Avg.	$3.487	$3.613	$3.719	$3.200
Month Ago Avg.	$3.722	$3.841	$3.939	$3.296
Year Ago Avg.	$4.130	$4.234	$4.332	$4.171

Washington Average Prices

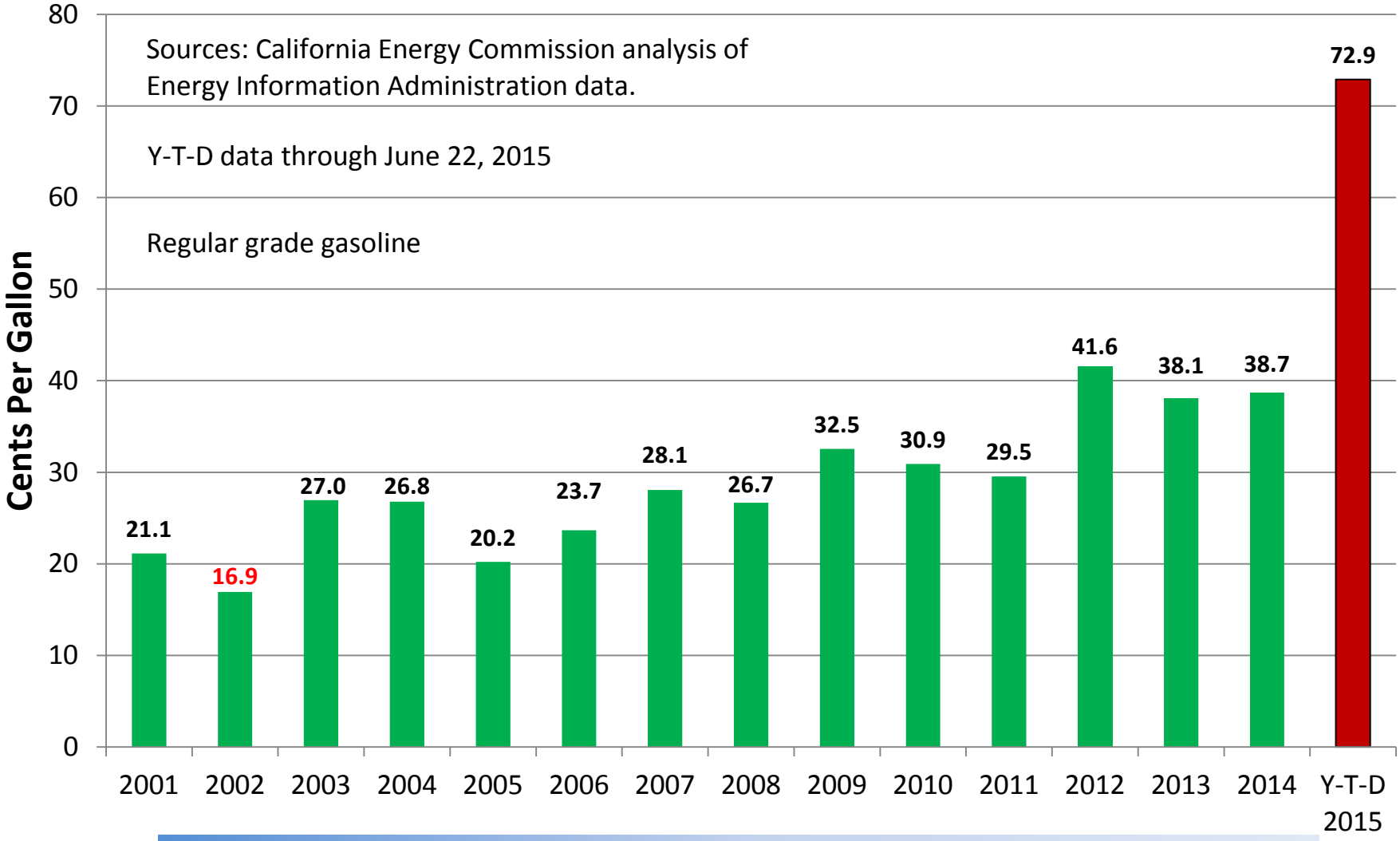
Prices updated as of 6/29/2015 3:45am

	Regular	Mid	Premium	Diesel
Current Avg.	$3.194	$3.323	$3.443	$3.226
Yesterday Avg.	$3.194	$3.327	$3.444	$3.228
Week Ago Avg.	$3.175	$3.296	$3.413	$3.216
Month Ago Avg.	$3.058	$3.180	$3.286	$3.172
Year Ago Avg.	$4.005	$4.121	$4.226	$4.090

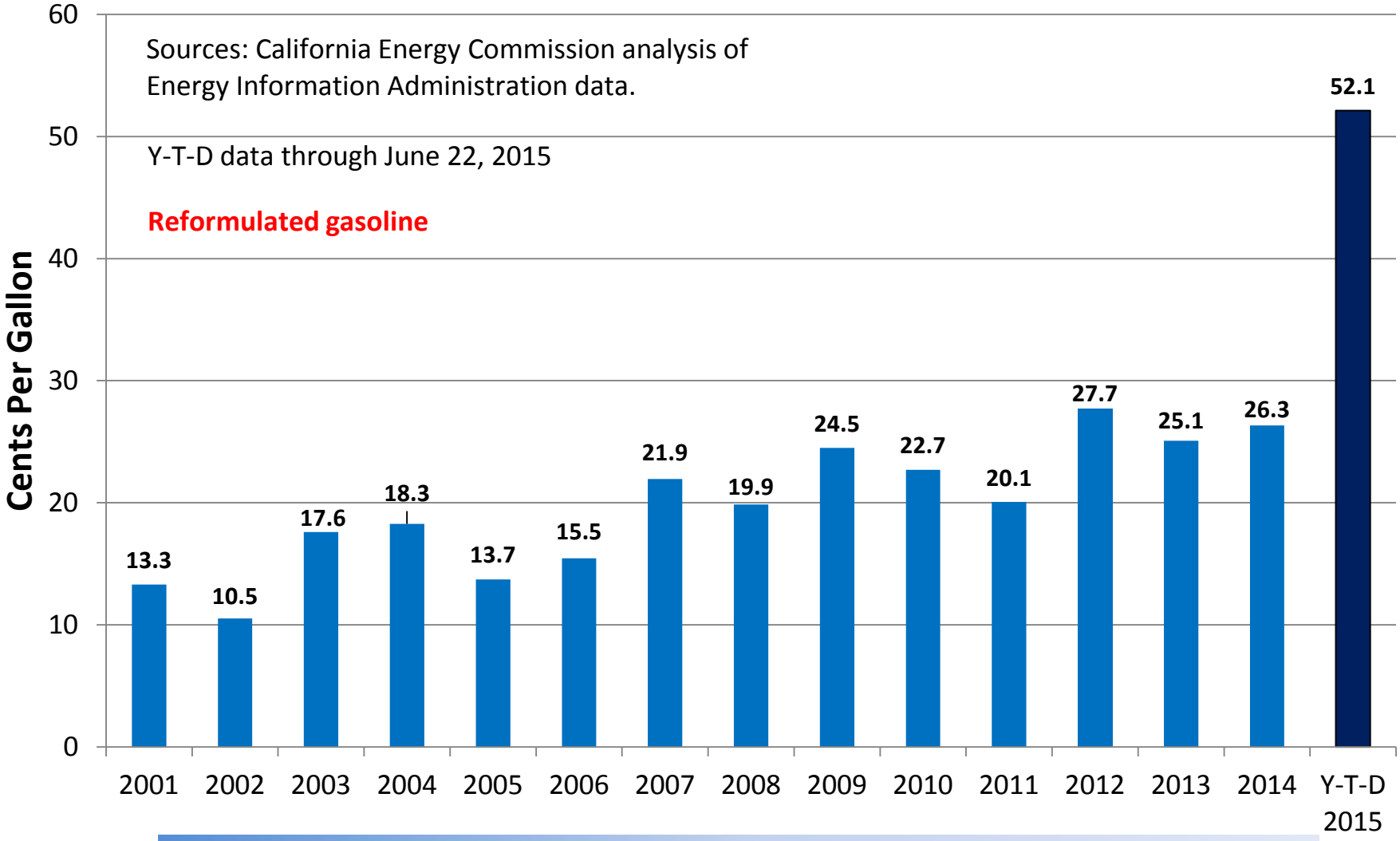
California Gasoline Market – More Expensive

- California has one of the more expensive retail gasoline and diesel fuel prices in the United States
- Reasons why California retail prices are more expensive:
  - Greater tax burden – 17 cents
  - Higher production costs – 10 cents
  - Fuels-under-the-cap obligation costs – 10 cents
  - An isolated market – 10 cents and more
- Between 2001 and 2014, annual average prices *at least:*
  - 17 cents per gallon higher than the average all U.S. retail gasoline prices
  - 10 cents higher than the average all U.S. **reformulated** gasoline prices
  - 12 cents higher than the average all U.S. retail diesel prices
- Between 2009 and 2014, differentials have averaged
  - 35.2 cents per gallon higher for all types of gasoline
  - 24.4 cents higher for all **reformulated** gasoline
  - 19.9 cents higher for diesel fuel

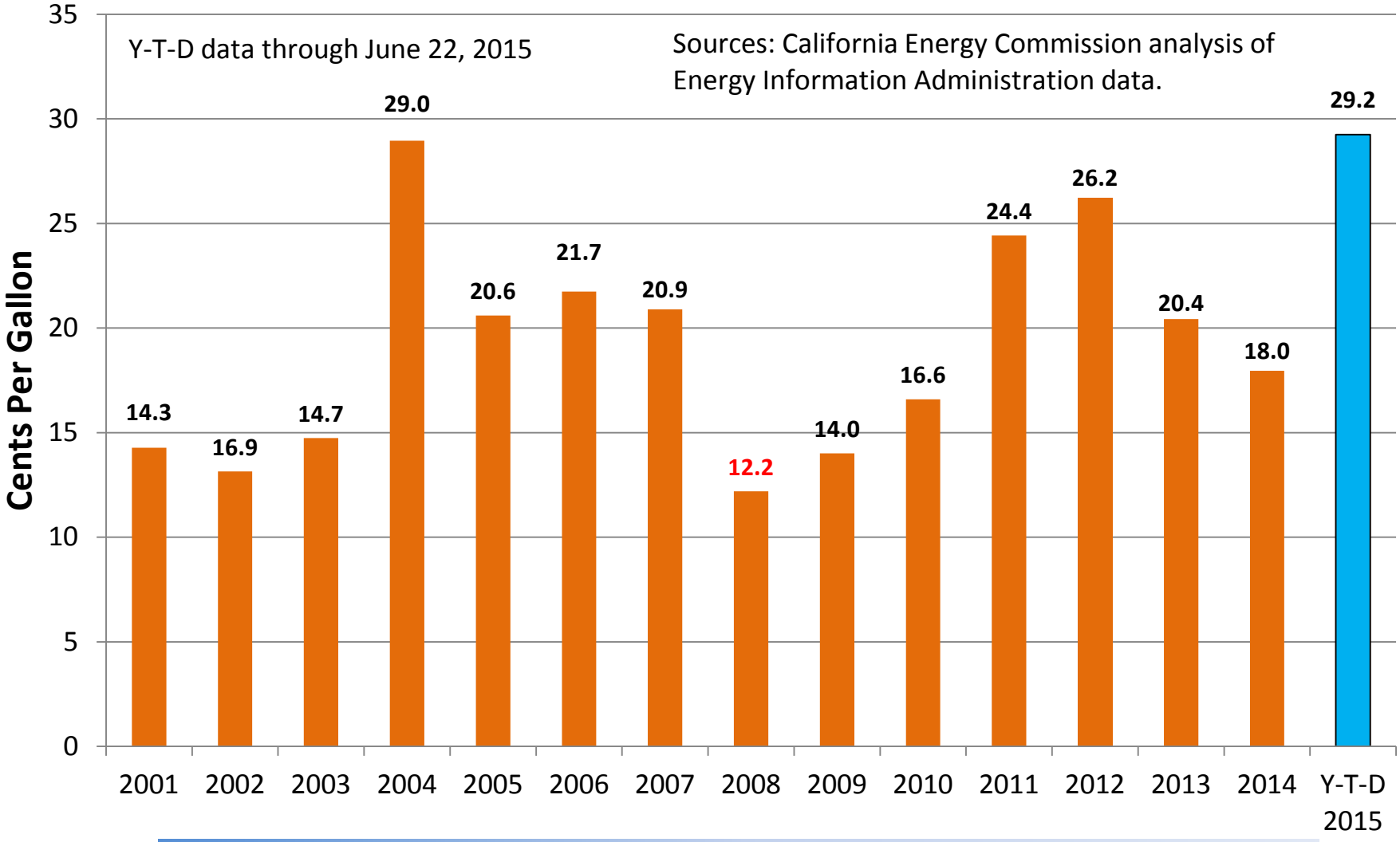
Retail Gasoline Price Differences
California Less U.S. Average



Retail Gasoline Price Differences
Calif. Less U.S. Reformulated Average

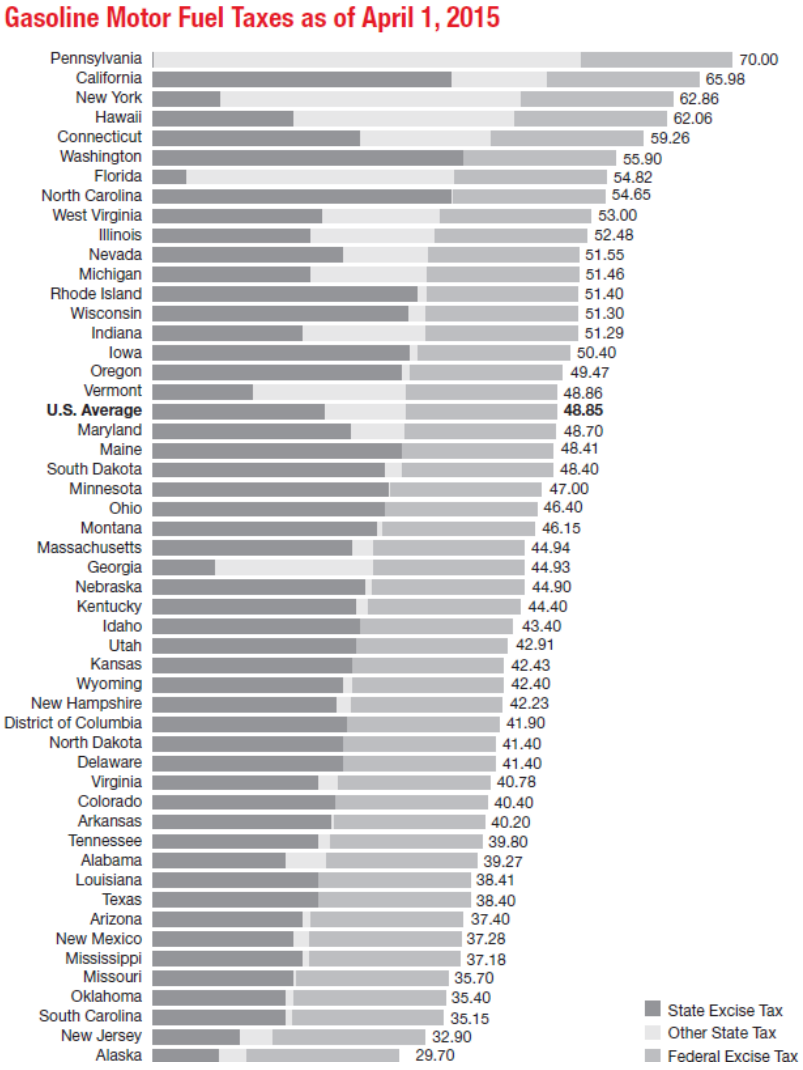


Retail Diesel Fuel Price Differences California Less U.S. Average



California Gasoline Market - Taxes

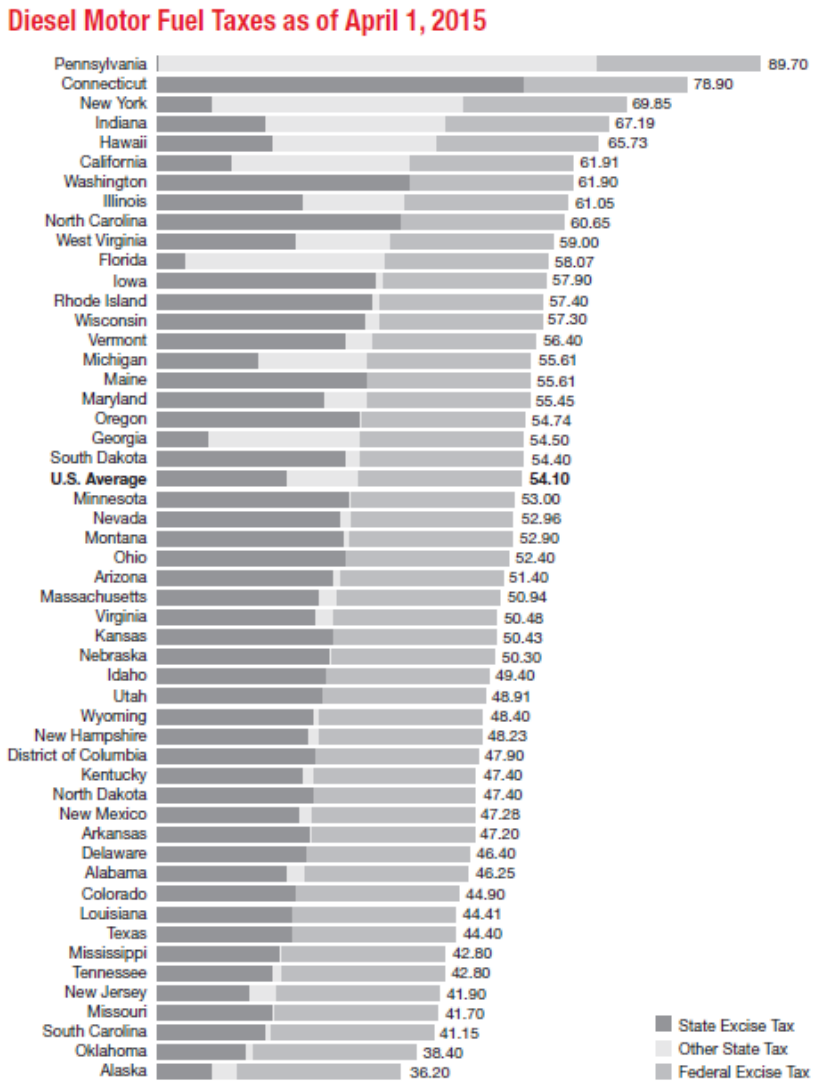
- The amount of tax levied on a gallon of gasoline in California is usually higher than nearly every other state
- As of April 1, 2015, California retail gasoline taxes accounted for 66.0 cents per gallon
- The U.S. average was 48.8 cents per gallon so California's retail gasoline tax burden was 17.2 cents per gallon higher than the U.S. average on that date



Source: American Petroleum Institute

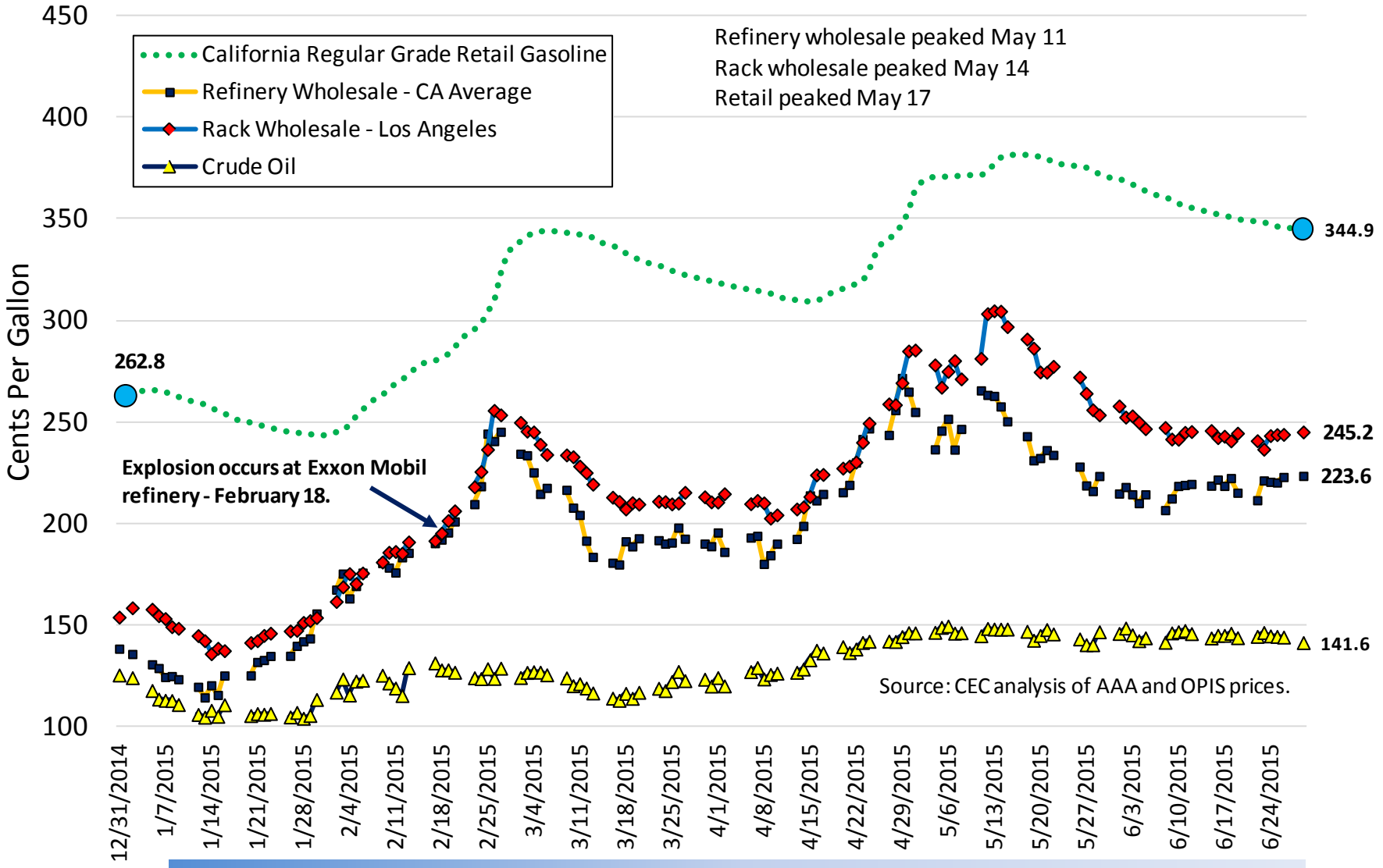
California Diesel Fuel Market - Taxes

- The amount of tax levied on a gallon of diesel fuel in California is usually higher than most other states
- As of April 1, 2015, California retail diesel fuel taxes accounted for 61.9 cents per gallon
- The U.S. average was 54.1 cents per gallon so California's retail gasoline tax burden was 7.8 cents per gallon higher than the U.S. average on that date

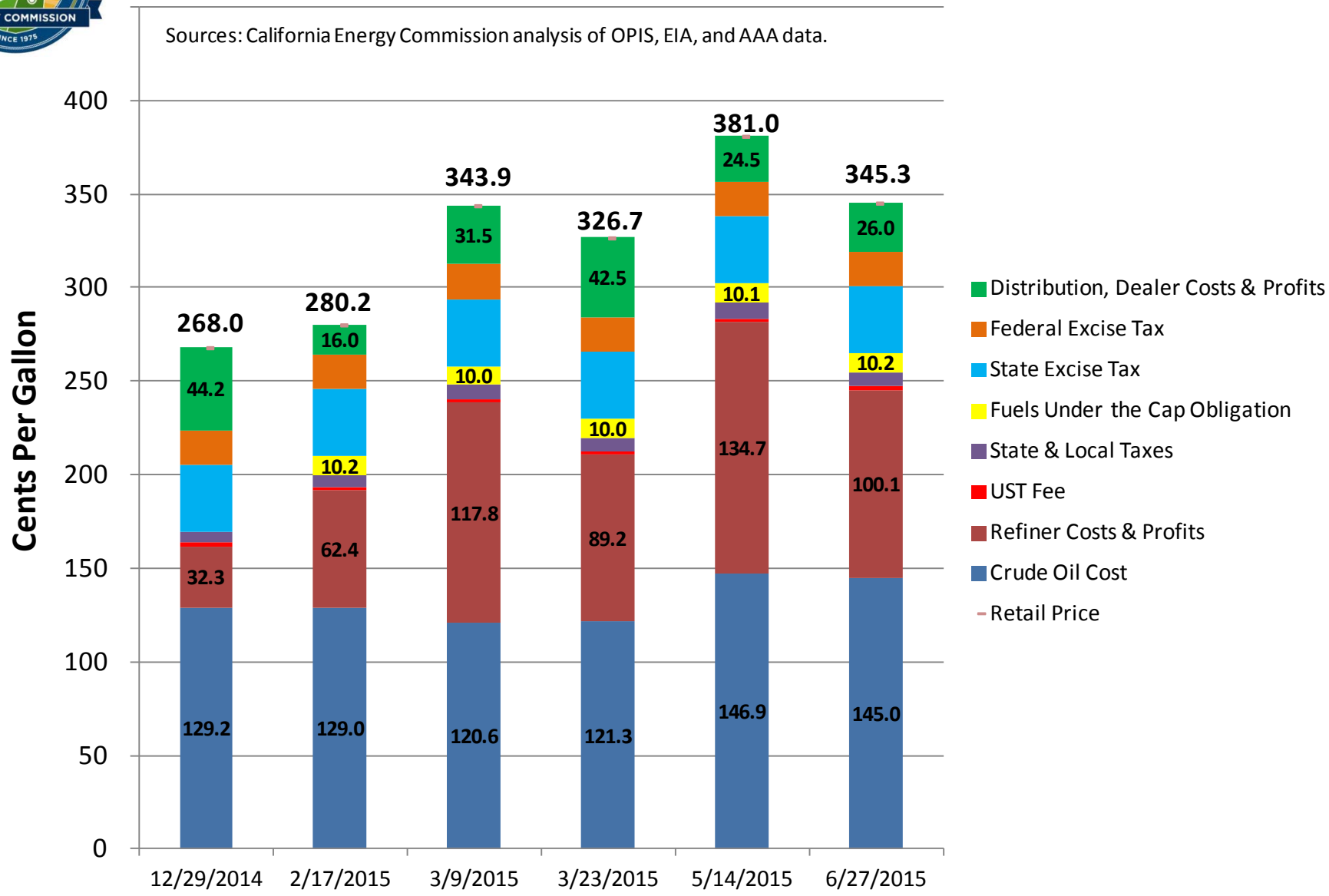


Source: American Petroleum Institute

California Gasoline Price Changes
Retail, Rack and Refinery Wholesale

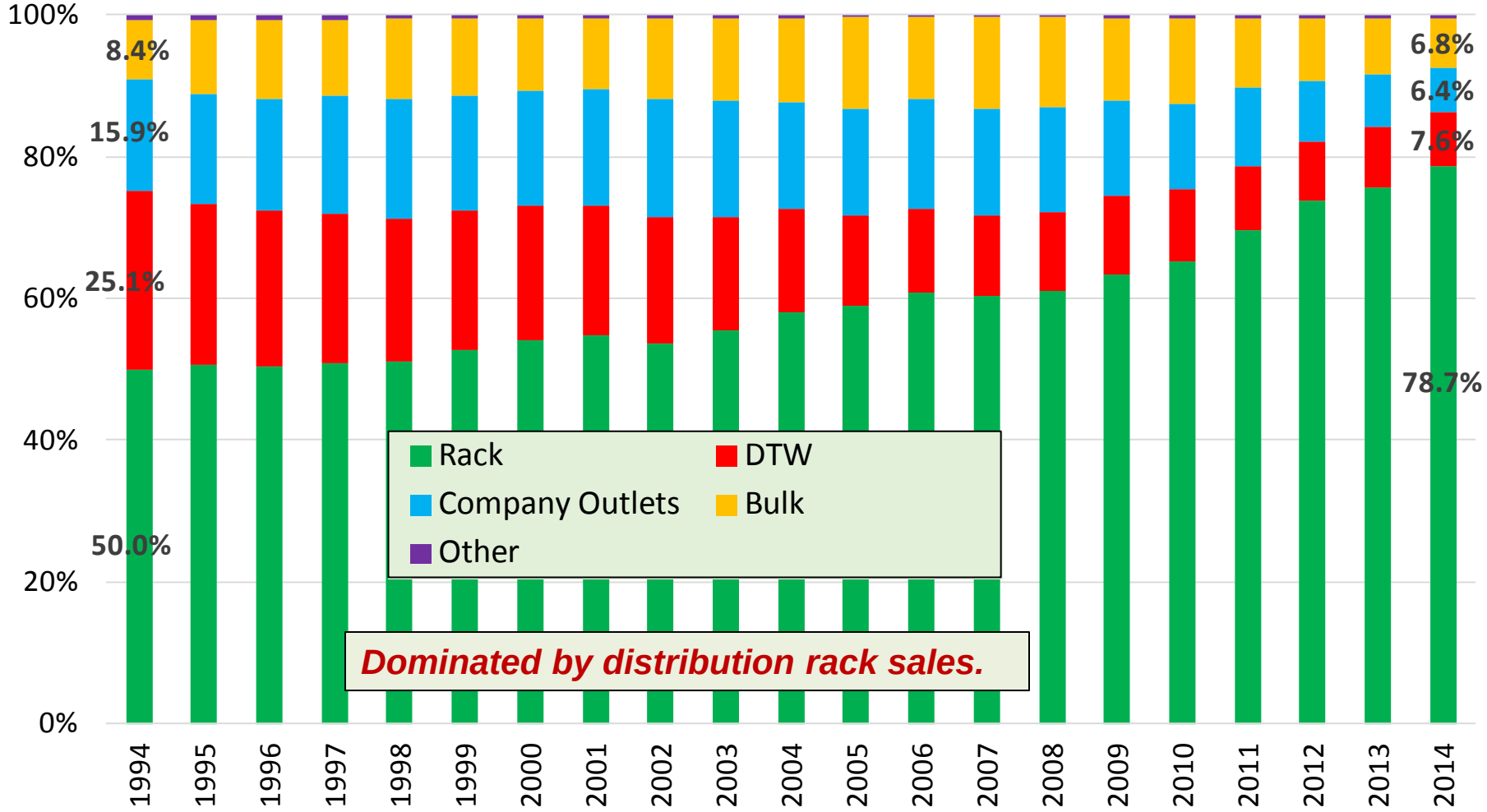


California Retail Gasoline Components



U.S. Gasoline Sales Breakdown

Source: California Energy Commission analysis of Energy Information Administration data.



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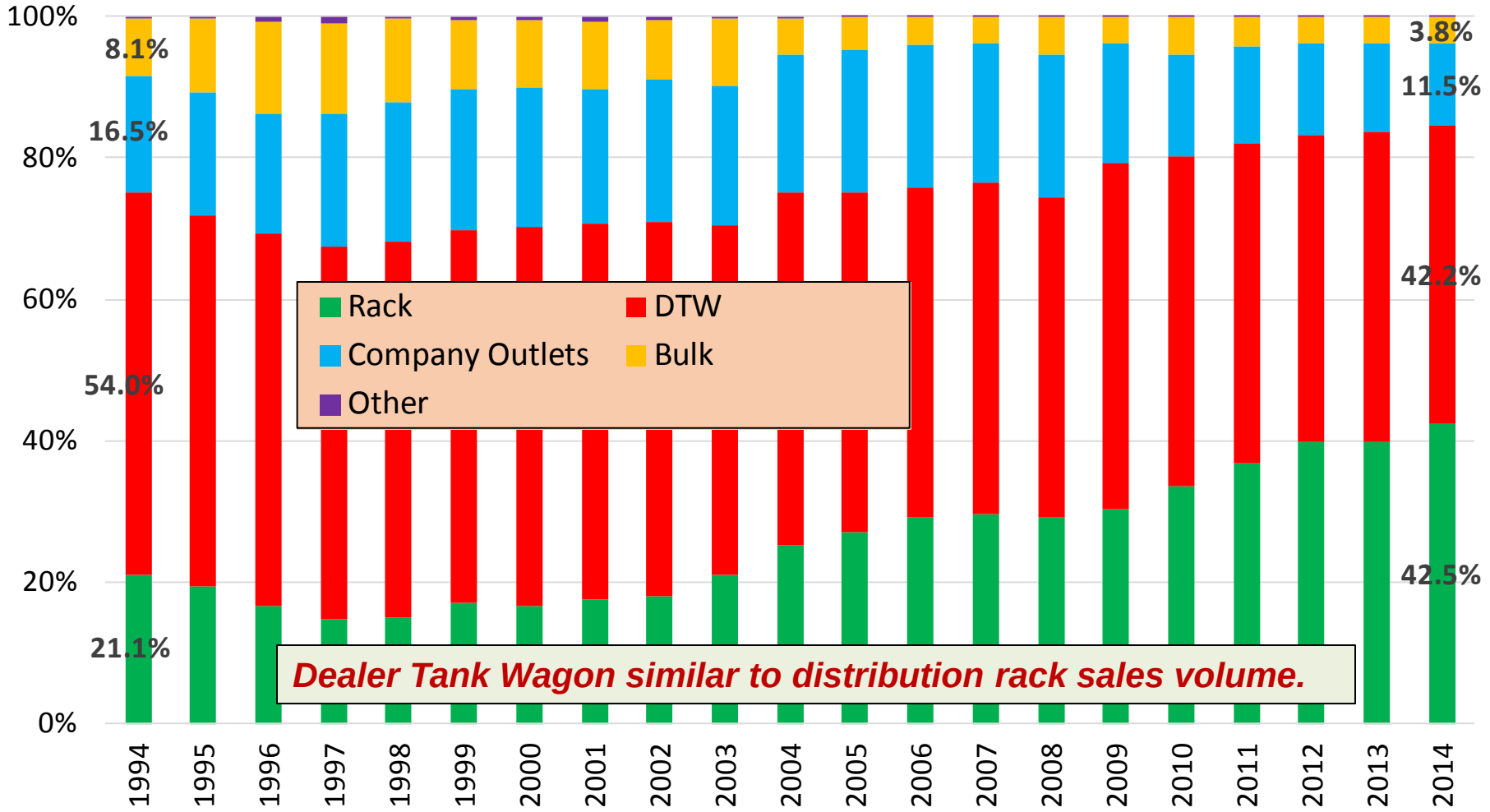
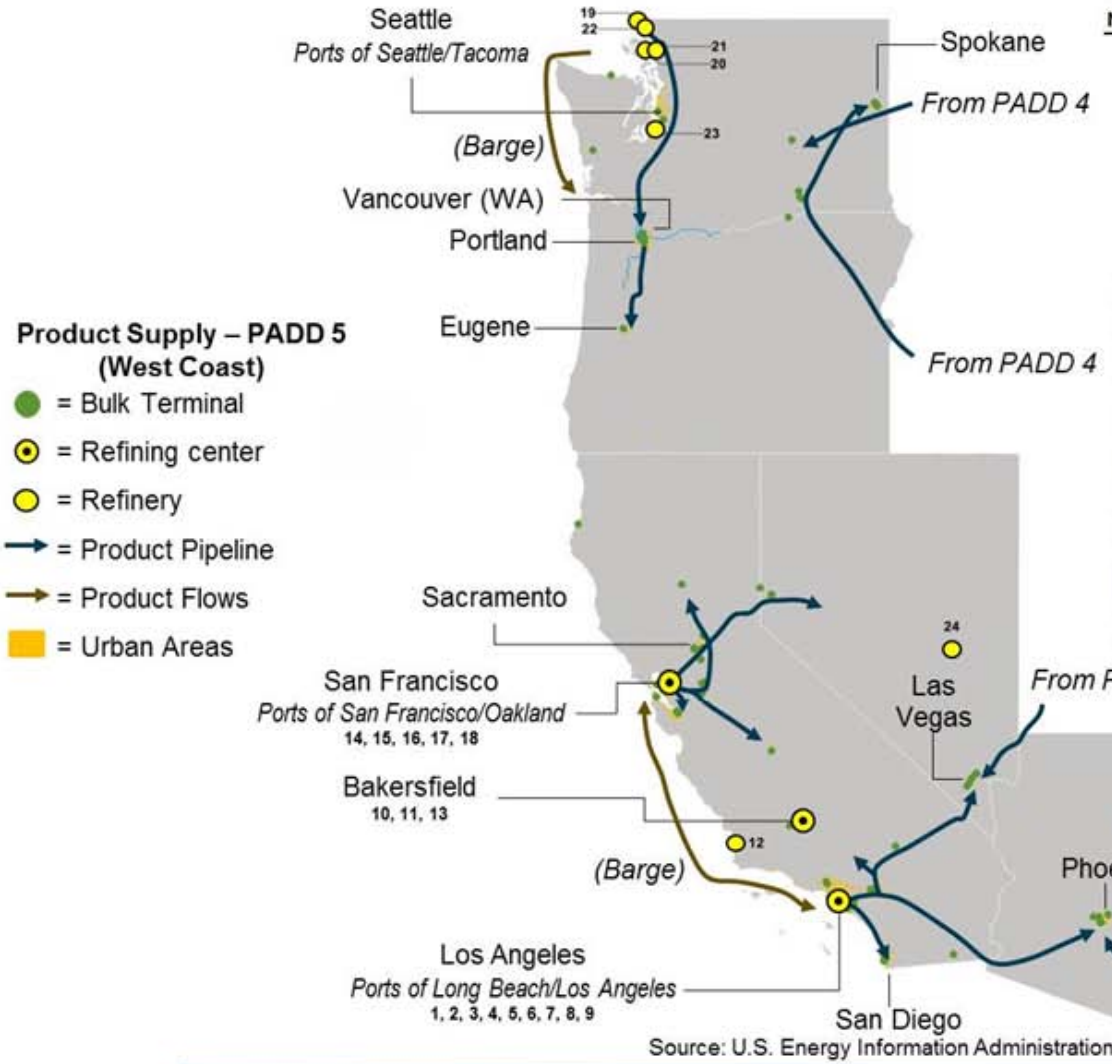


Western States More Isolated than Rest of U.S.

West Coast petroleum product supply map



Num	Corporation	Site Name	Capacity (bbl/d)
1	Chevron	El Segundo	269,000
2	Tesoro	Carson	251,000
3	ExxonMobil	Torrance	149,500
4	Phillips 66	Wilmington	139,000
5	Tesoro	Wilmington	104,500
6	Alon	Paramount	Idle
7	Valero	Wilmington	78,000
8	Lunday Thagard	South Gate	8,500
9	Valero	Wilmington (asphalt)	6,300
10	Kern Oil	Bakersfield	26,000
11	San Joaquin Refining	Bakersfield	15,000
12	Greka Energy	Santa Maria	9,500
13	Alon	Bakersfield	No CDU
14	Chevron	Richmond	245,271
15	Tesoro	Martinez	166,000
16	Shell	Martinez	156,400
17	Valero	Benicia	132,000
18	Phillips 66	Rodeo	120,200
19	BP	Ferndale	225,000
20	Shell	Anacortes	145,000
21	Tesoro	Anacortes	120,000
22	Phillips 66	Ferndale	101,000
23	US Oil & Refining	Tacoma	40,700
24	Foreland Refining	Ely	2,000

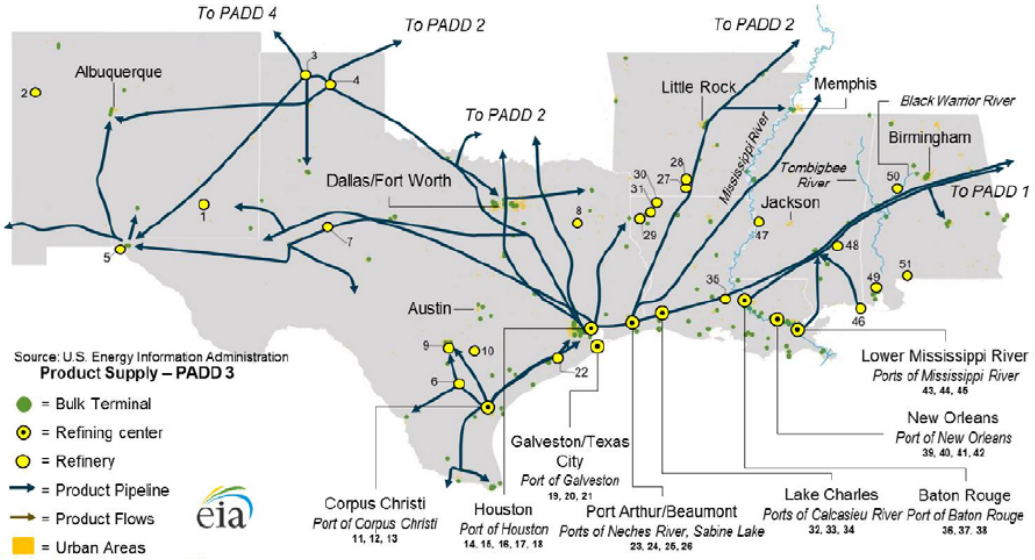
Source: U.S. Energy Information Administration.

California Gasoline Market - Isolated

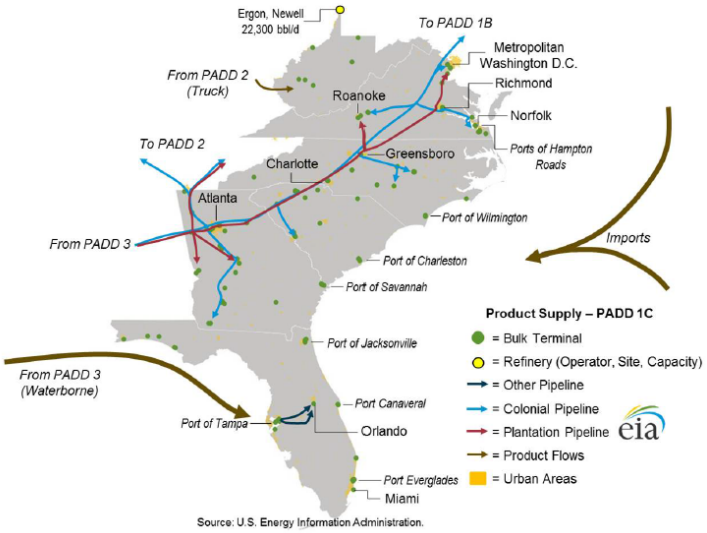
- California's gasoline market is nearly self-sufficient, so supplies of gasoline from outside of California are not routinely needed to balance out supply with demand
  - Imports of gasoline and blending components account for only 3 to 6 percent of supply
- The California market is geographically isolated from other locations in the United States that produce refined products
- Pipelines connect California refining centers to distribution terminals in Nevada and Arizona, but these pipelines only operate in one direction – sending gasoline and other transportation fuels to these neighboring states
- California market is isolated by time and distance from alternative sources of re-supply during unplanned refinery outages

Balance of Other Regions Varies

- Unlike other areas, California is nearly self-sufficient
  - Primary sources of transportation fuels originate from *inside* the state
  - More susceptible to price spikes following unplanned outages
- Other regions less prone to price spikes
  - Price spikes following significant unplanned refinery outages less common



Large net ***exporting*** region



Large net ***importing*** region

Factors Impacting Fuel Prices

- Transportation fuel prices are primarily impacted by:
  - Changes in crude oil price
  - Changes in wholesale price
- Crude oil is a global commodity & prices fluctuate due to:
  - Increasing supply from non-OPEC countries, such as the United States
  - Geopolitical events that increase risk of supply disruption
  - Rising or falling global demand for oil
  - Heightened activity in the futures market as an alternative investment opportunity
  - Value of U.S. dollar to other currencies, a stronger dollar will place downward pressure on global crude oil prices

Factors Impacting Fuel Prices (cont)

- Wholesale fuel prices impacted by:
  - ↑ Unplanned refinery outages
  - ↑ Return-to-service delays by refineries undergoing planned maintenance
  - ↑ Transition from winter to summer gasoline recipe that decreases gasoline production capability of refineries
  - ↑ Introduction of new environmental fees
  - ↑ Changes in fuel regulations, such as reformulated gasoline and transition away from MTBE
  - ↕ Changes in futures contract prices linked to wholesale prices
  - ↕ Unusually high or low fluctuations of fuel inventory levels
  - ↕ Changes in the level of taxes on fuels
  - ↓ Transition from summer to winter gasoline recipe that increases gasoline production capability of refineries
  - ↓ Resumption of operations by temporarily idled refineries

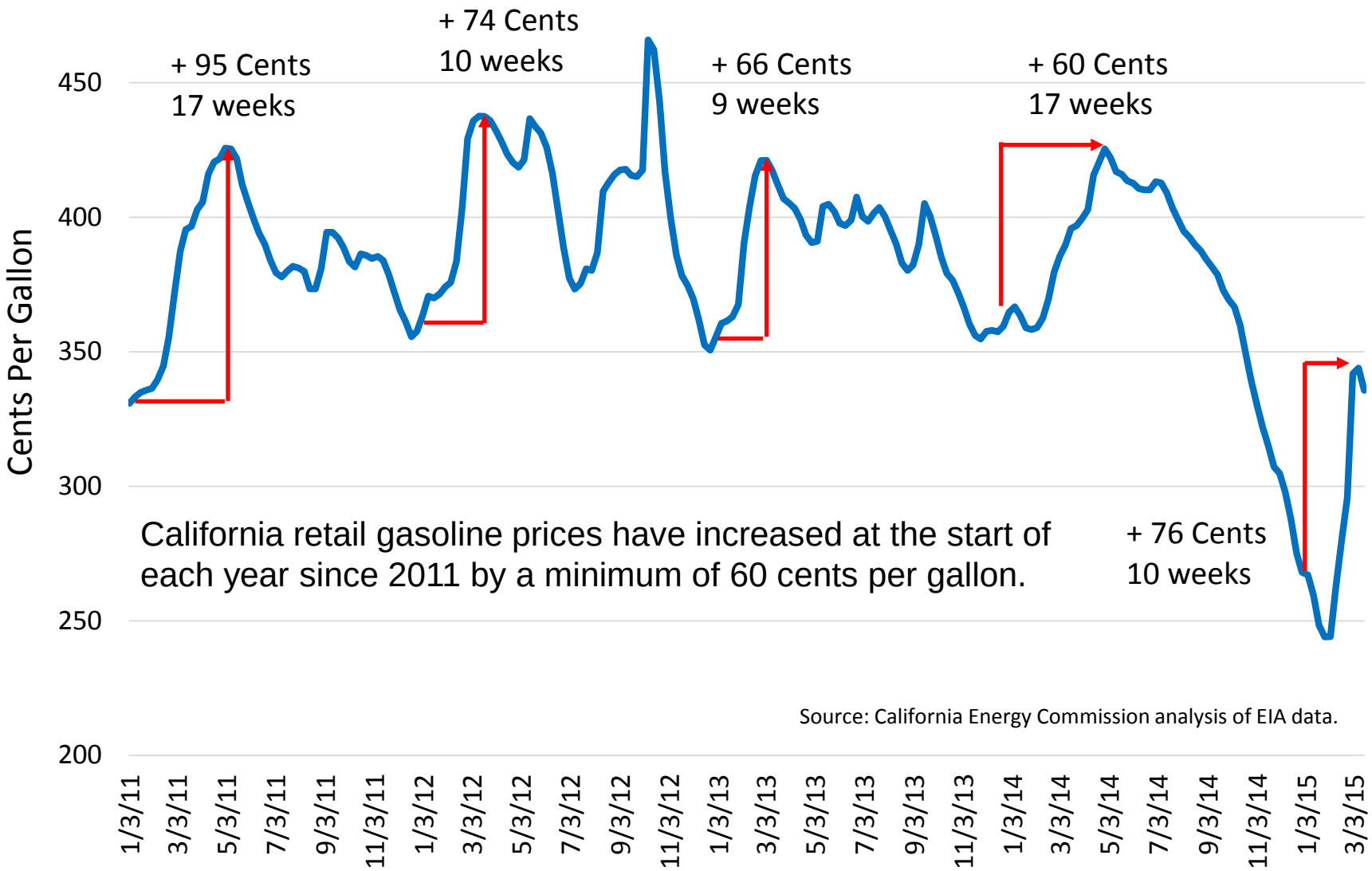
2015 Elevated Gasoline Prices - Factors

	Upward Pressure on Prices	Downward Pressure on Prices	
✓	Transition from Winter to Summer Gasoline	Transition from Summer to Winter Gasoline	
✓	Unplanned Refinery Closure		
✓	Refiner Delayed from Returning from Planned Maintenance		
✓	Lower-than-normal Inventories	Higher-than-normal Inventories	✓
✓	New Environmental Fee	Marine Imports of Fuel	✓
	Increased Fuel Tax	Decreased Fuel Tax	
	Change in Fuel Regulations		

Factors Related to Seasonal Rise

- California gasoline prices normally increase at the start of each year due to a number of factors:
  - Demand for gasoline is usually at the low point during January and steadily increases up through the summer months
  - Transition from winter to summer gasoline decreases gasoline production capability of refineries by 5 to 8 percent
    - This change begins during the second week of February for Southern California and a month later for Northern California
  - Planned refinery maintenance work that takes longer than anticipated, delaying resumption of fuel production and decreasing inventories
  - All of these factors place upward pressure on gasoline prices
  - Declining crude oil prices, however, can mask the normal rise in retail gasoline prices

Seasonal Gasoline Price Increase



California retail gasoline prices have increased at the start of each year since 2011 by a minimum of 60 cents per gallon.

Source: California Energy Commission analysis of EIA data.

Strike Prevents Refinery Restart – Feb. 1st

- Tesoro Golden Eagle refinery in Martinez, CA given strike notice – Feb. 1
- Refinery was conducting planned maintenance on half of process units
- Company announces decision to idle remaining process units rather than attempt to restart idle units – Feb. 2
- Tesoro announces that all refinery units have been safely idled and the facility will be operated as a terminal – Feb. 6
  - **9.3 percent of state refining capacity**
- National refinery worker strike reaches a new four-year agreement – March 12
- Tesoro workers return to work and begin maintenance & restart operations – March 27

Source: Susan Tripp Pollard/Bay Area News Group.

Exxon Mobil Refinery Explosion – Feb. 18th

Source: Bob Riha, Reuters.

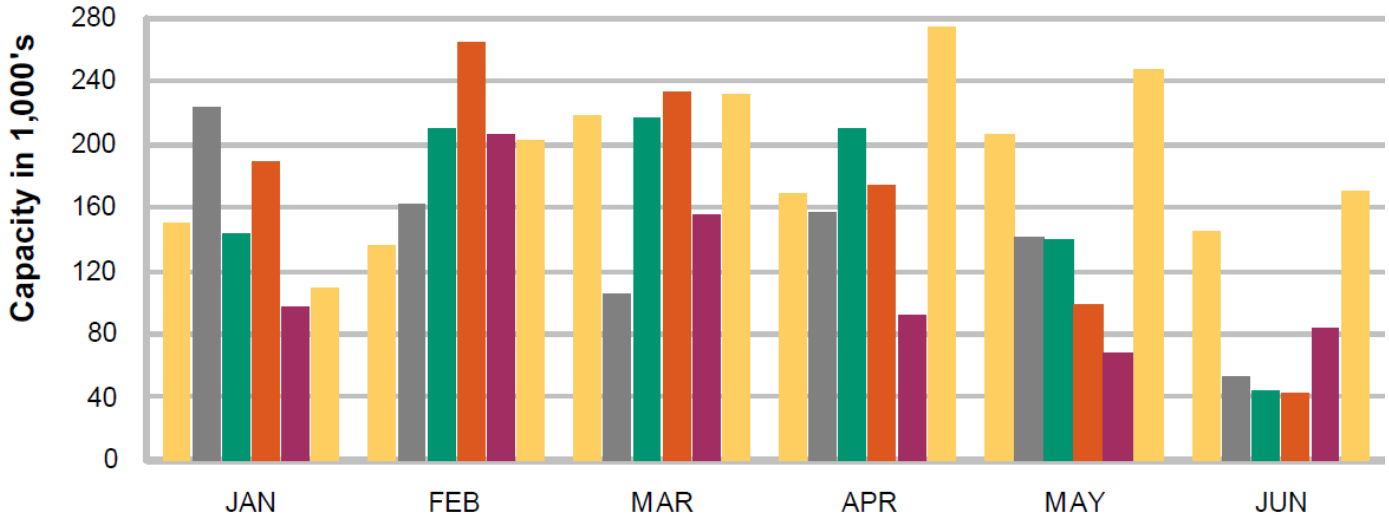
- Explosion occurs at Exxon Mobil refinery in the morning
- Involves electrostatic precipitator (ESP), pollution control device
- Refinery gasoline units unable to operate following ESP outage
  - **8.3 percent of state refining capacity**
- According to company, supplies nearly 10 percent of gasoline to the state
- Trade publication reports refinery could resume operation of gasoline units, at reduced rates, using older ESP unit after being refurbished – possibly late July
- This action will benefit supply

Refinery Operations

- Other refinery problems:
  - BP – Cherry Point begins planned maintenance – April 13
    - May 31 – restart commences – **delayed by 19 days**
  - US Refining – Tacoma begins unplanned maintenance – May 7
    - Crude unit fire forces **planned work moved up by 3-4 weeks**
    - June 17 - work completed, restart operations commence
  - Phillips 66 – Wilmington begins planned maintenance – May 13
    - Work commenced 3 weeks earlier than scheduled due to cooling tower issues
    - June 9 - restart operations – **delayed by 5 to 7 days**
  - Plains All American crude oil pipeline leak – May 20
    - Phillips 66 operations impacted, accelerated planned maintenance & reduced operations
  - Chevron – El Segundo refinery maintenance continues
    - Previously scheduled completion on June 19 – **delayed by 17 days**

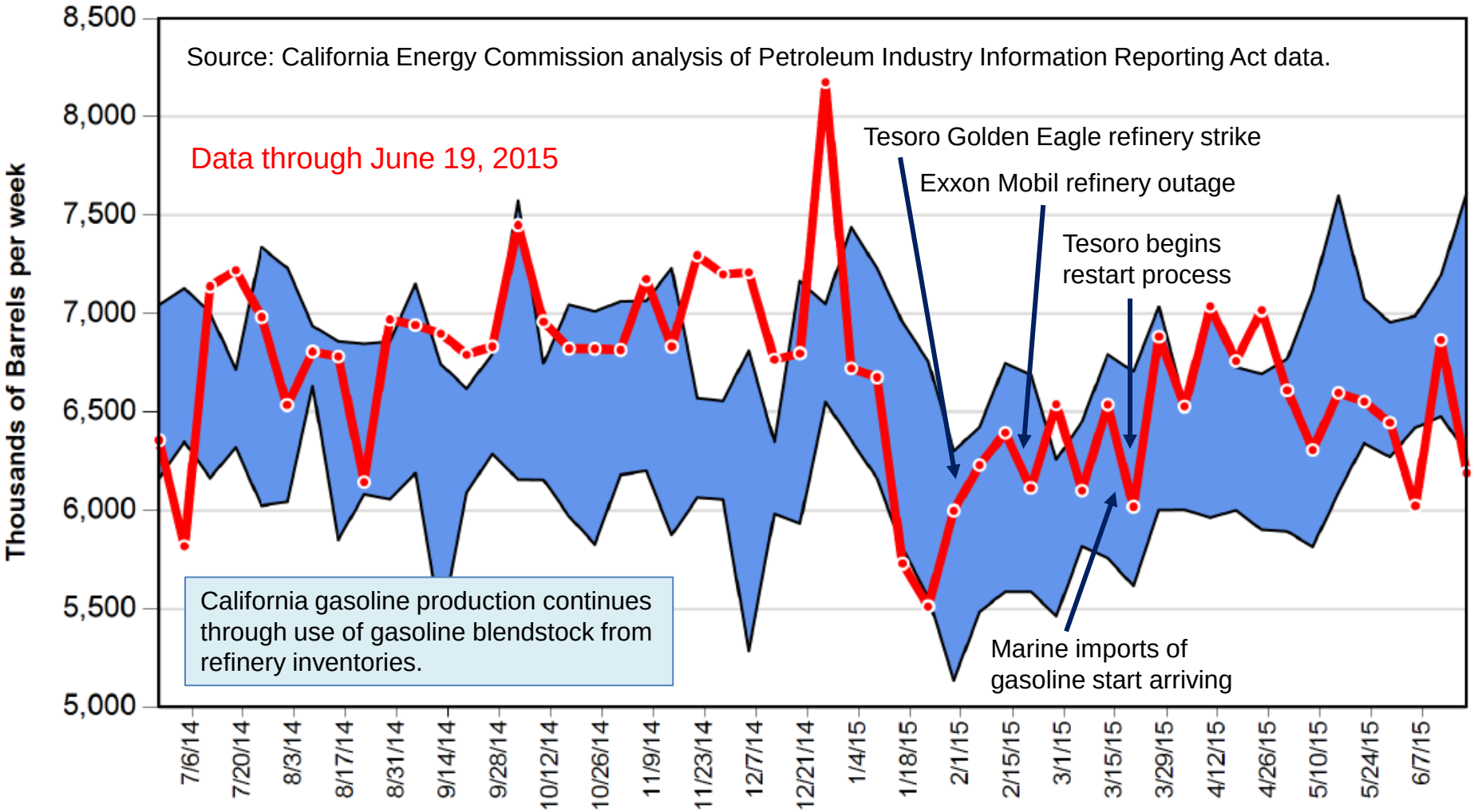
Refinery Operations

- Refinery problems – gasoline impact quantified
  - West coast gasoline production capability significantly degraded
  - Based on analysis of IIR data, the quantity of gasoline production capacity off-line during the last 4 months averaged nearly 130 thousand barrels per day (TBD) greater than 2014
    - March – 75 TBD more, April 180 TBD more, May 175 TBD more & June 85 TBD more than previous year



Source: Industrial Information Resources (IIR) Loss Gasoline Production Report.

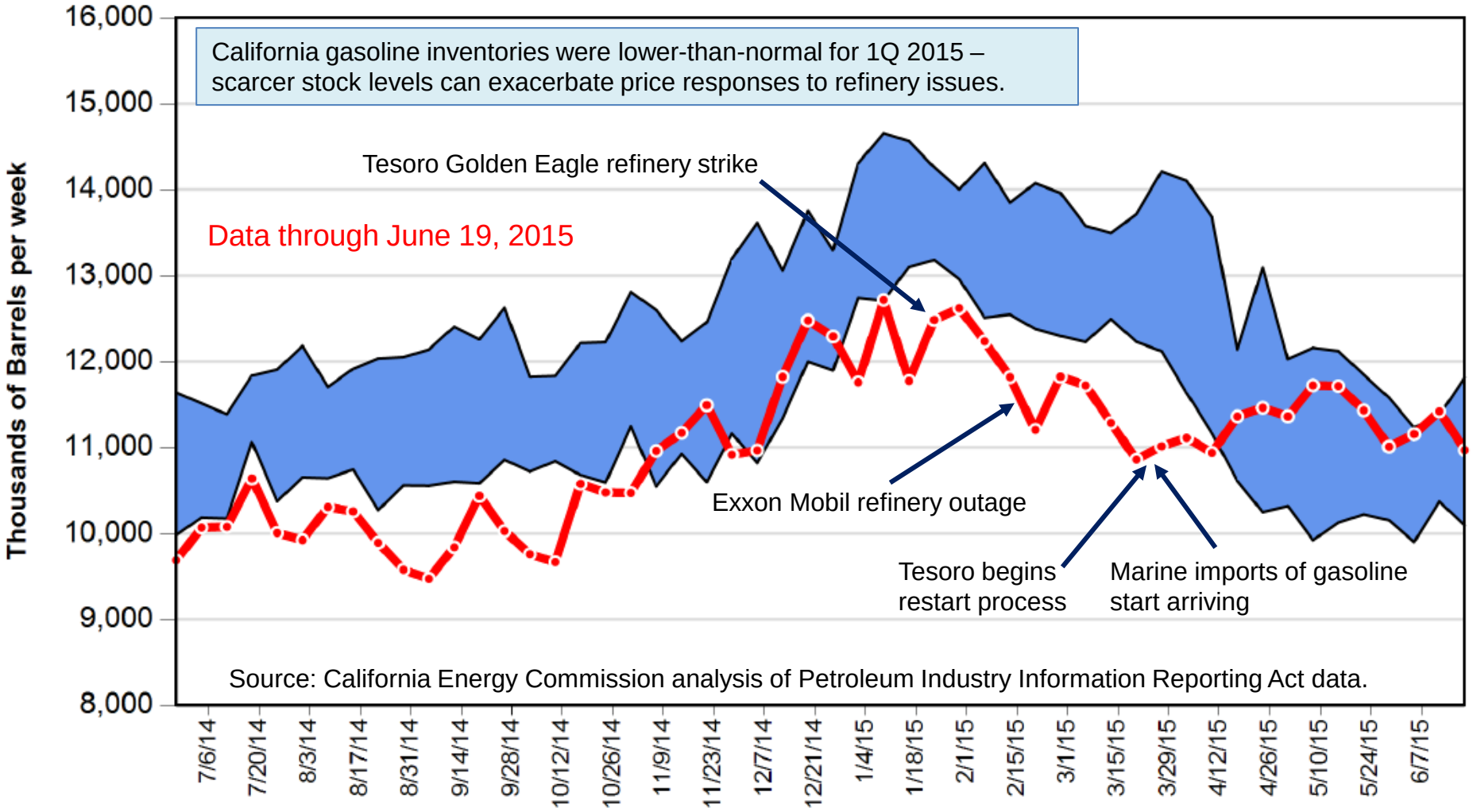
California Gasoline Production
Current vs. 5-year High-Low Band



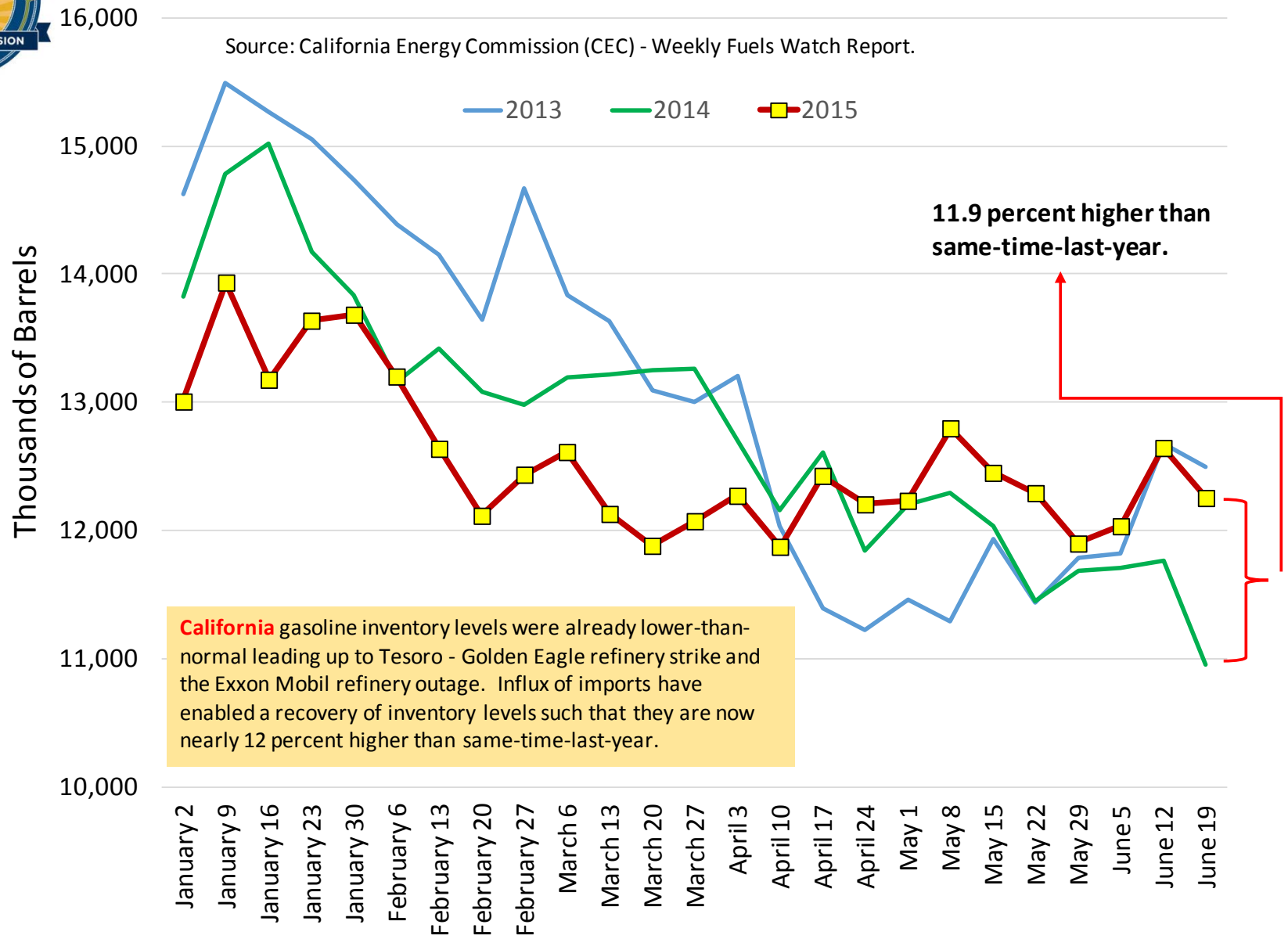
Gasoline Inventory Data

- Inventory data for finished gasoline and blending components is tracked by the Energy Information Administration (EIA) and the California Energy Commission (CEC)
  - CEC publishes weekly refinery inventories
  - EIA publishes weekly & monthly data
    - Refineries
    - Distribution terminals
    - Pipeline fill
  - Distribution terminal and pipeline fill inventory levels are far less relevant compared to refinery inventory levels because of the absence of long-term storage capability
  - “Days of Supply” calculations should be based on refinery inventory levels, not the incorrect inclusion of distribution terminal volumes

California Gasoline Inventory Levels
Current vs. 5-year High-Low Band

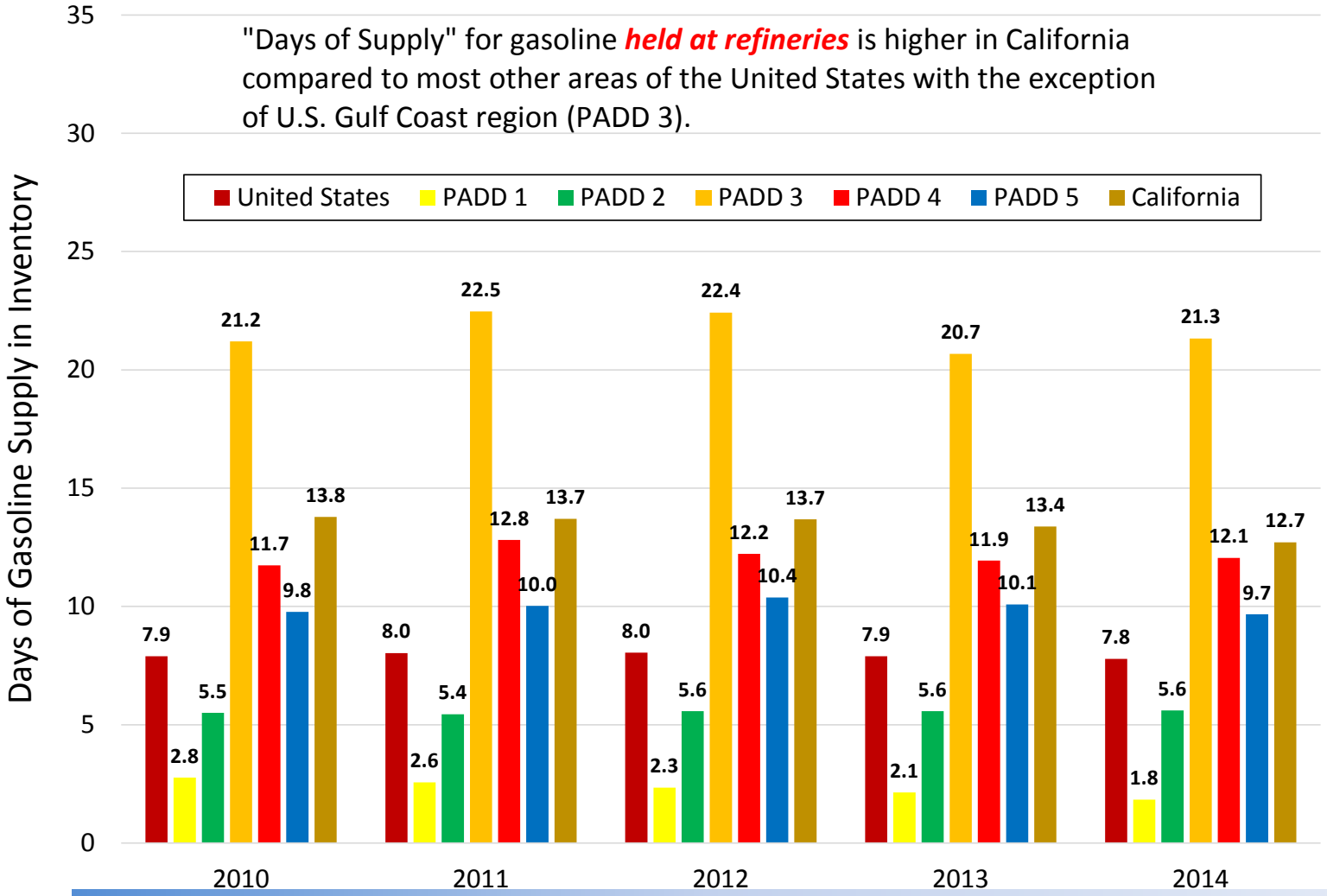


California Gasoline Inventories



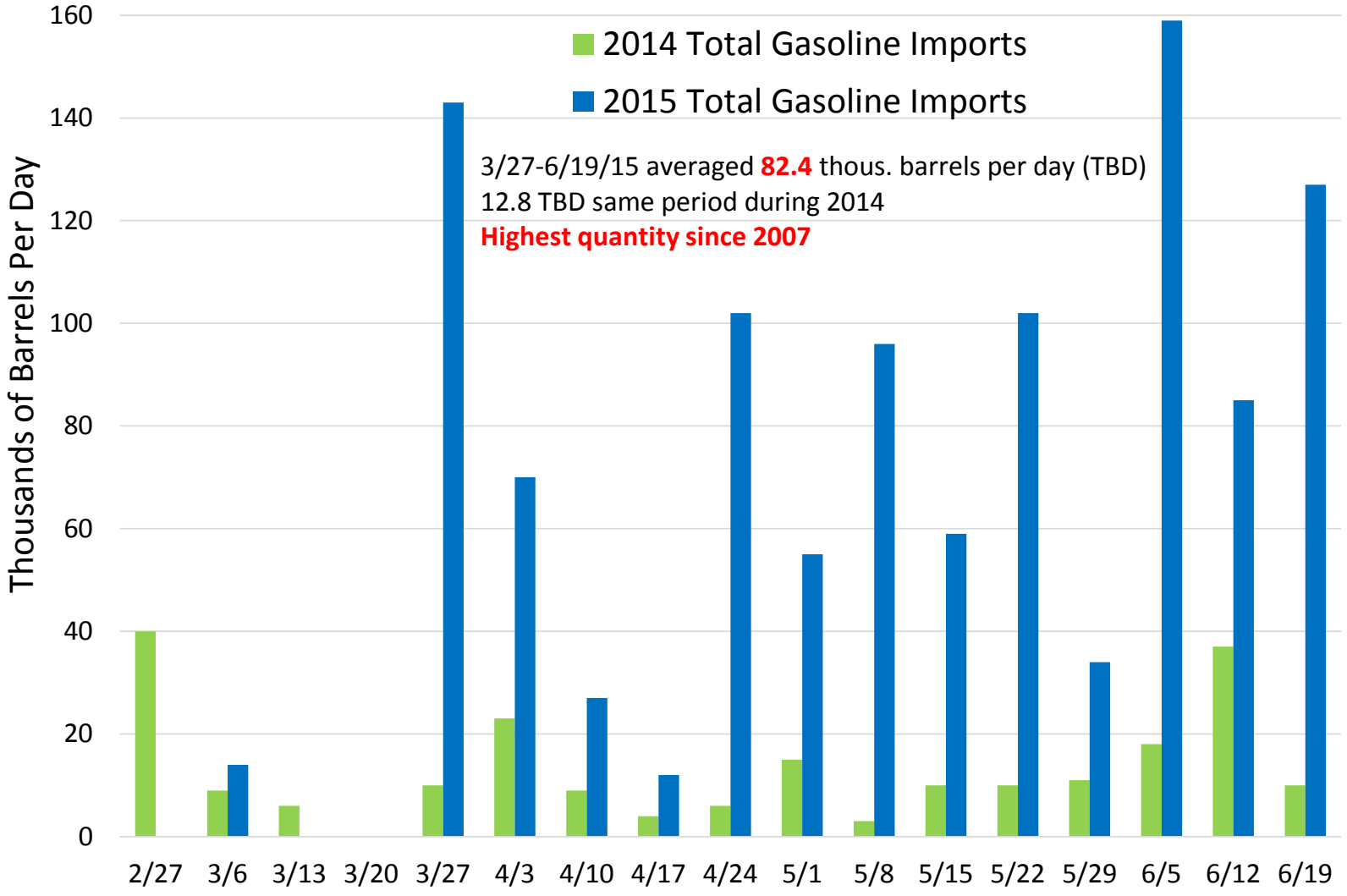
Gasoline Inventory Levels
"Days of Supply" Comparisons

Sources: California Energy Commission analysis of Energy Information Administration and Petroleum Industry Information Reporting Act data.

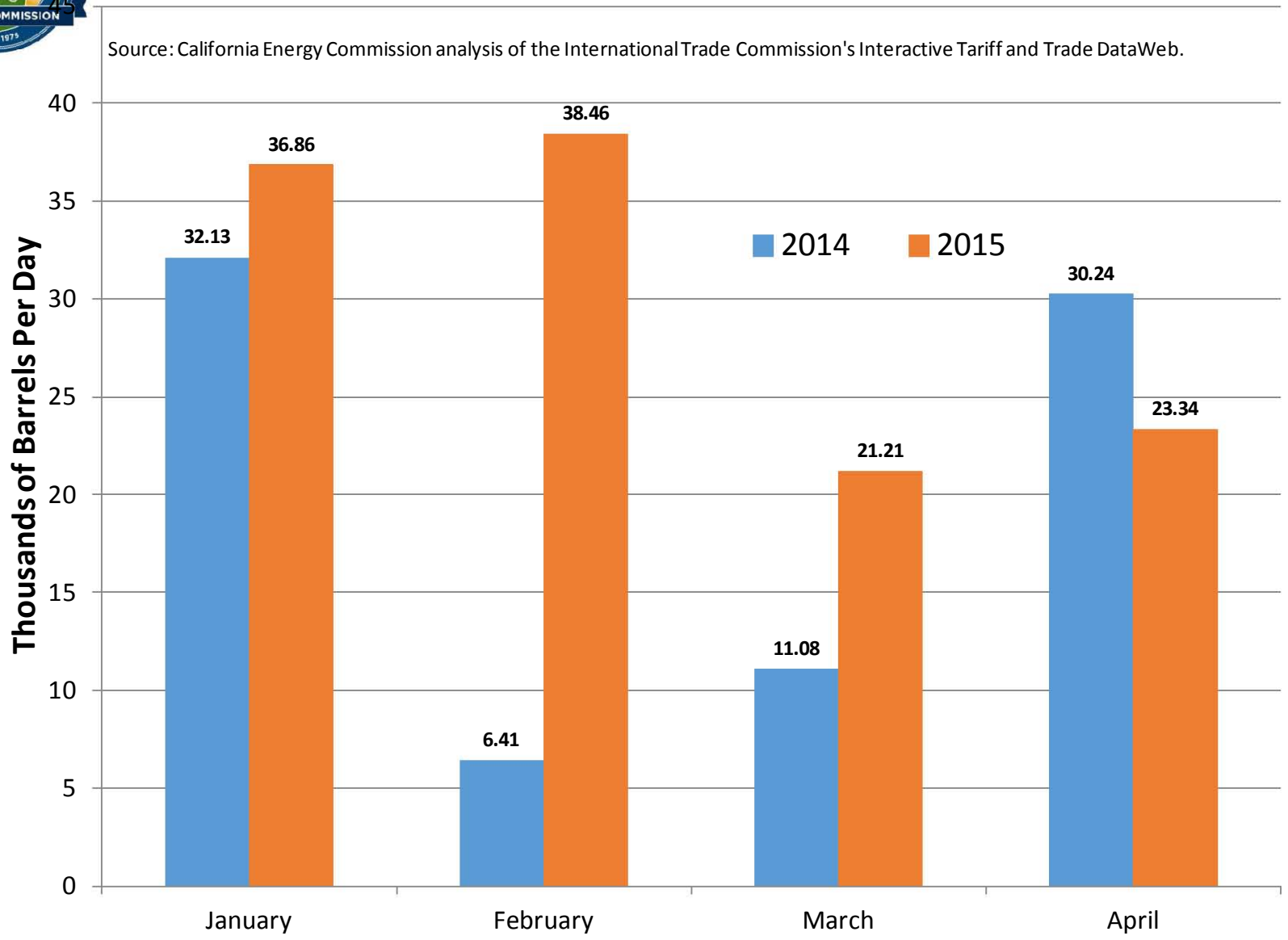


West Coast Foreign Gasoline Imports

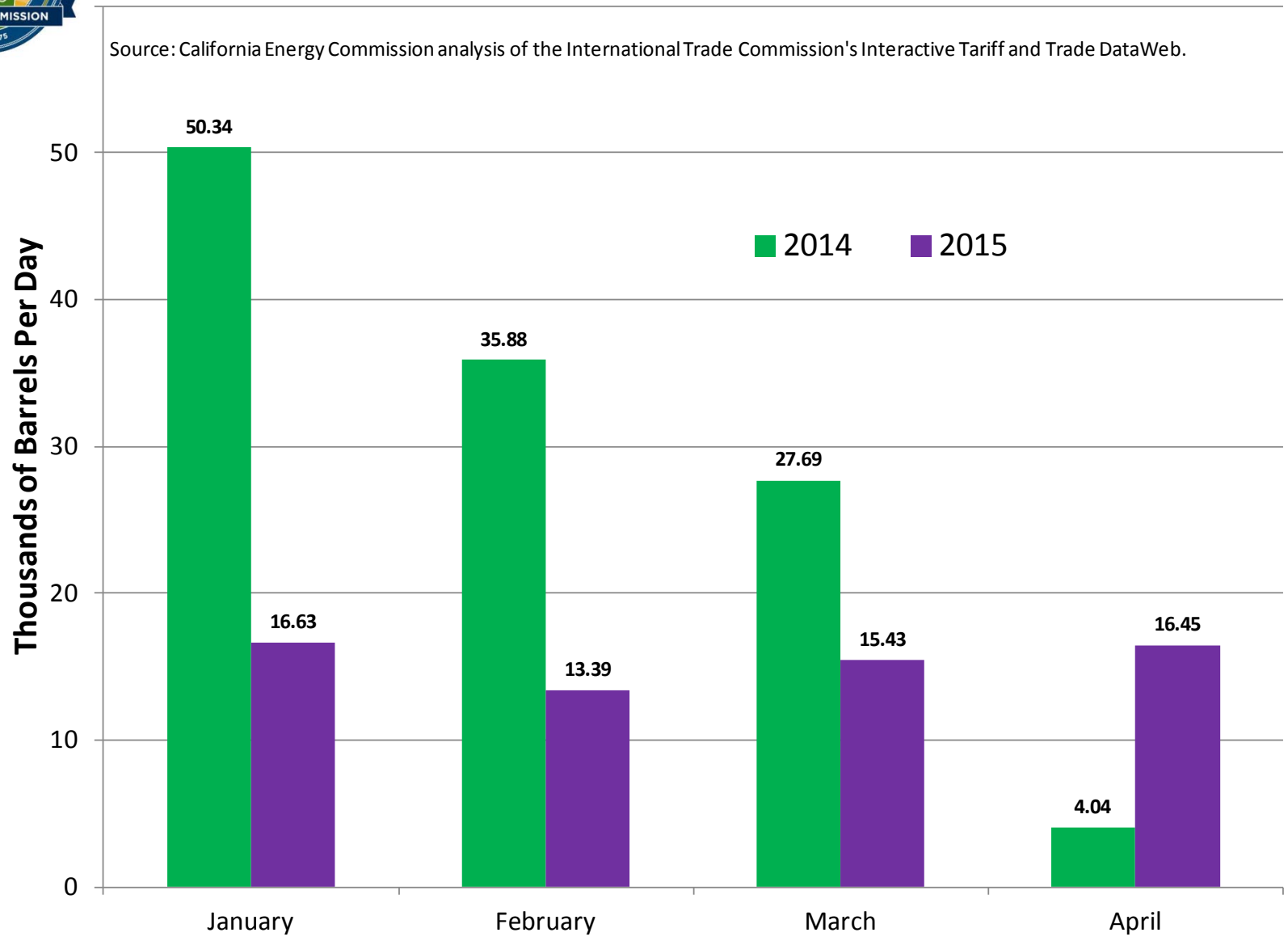
Source: California Energy Commission analysis of weekly import data from the Energy Information Administration.



California Foreign Gasoline Exports



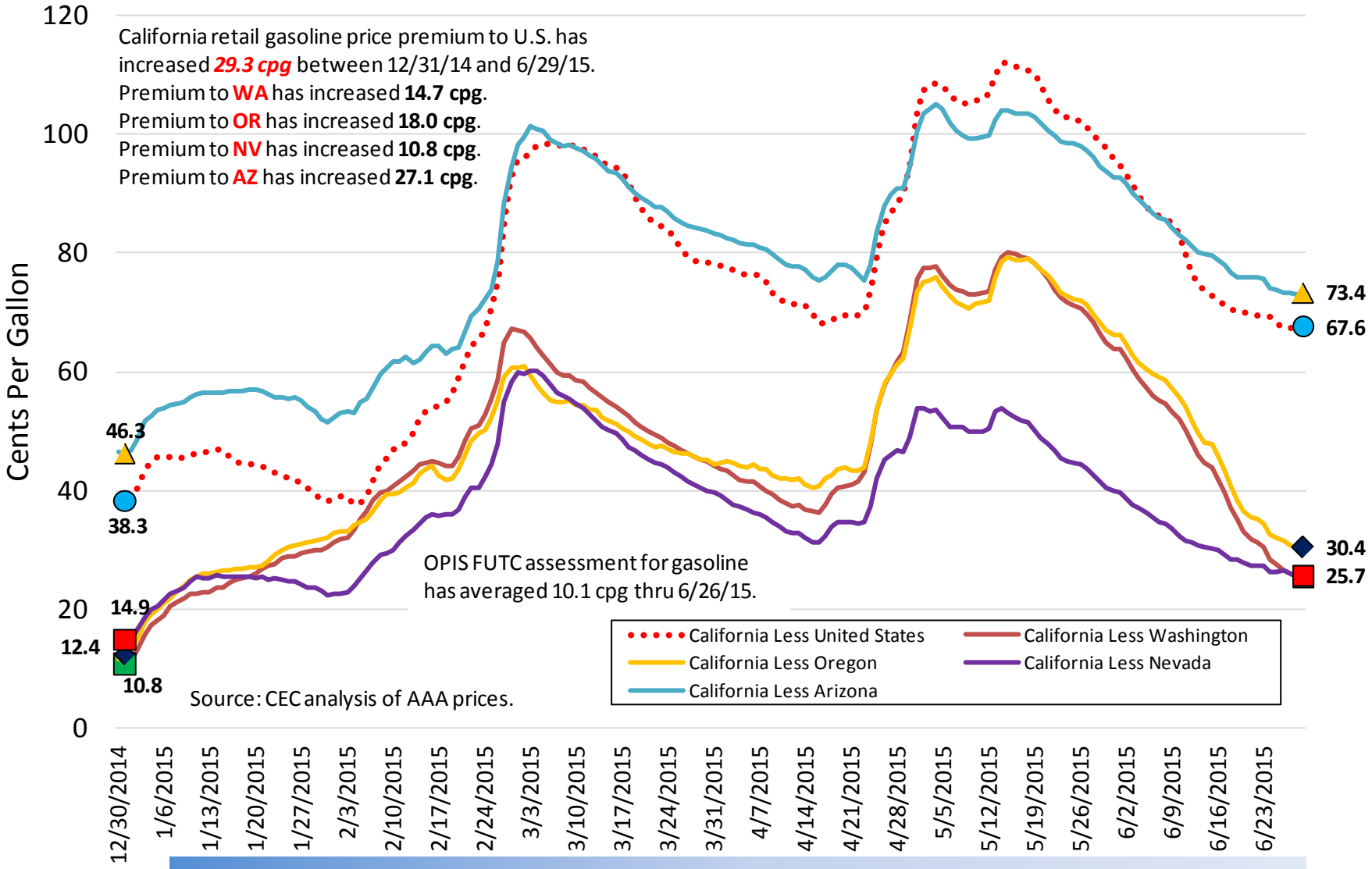
Pacific Northwest Foreign Gasoline Exports



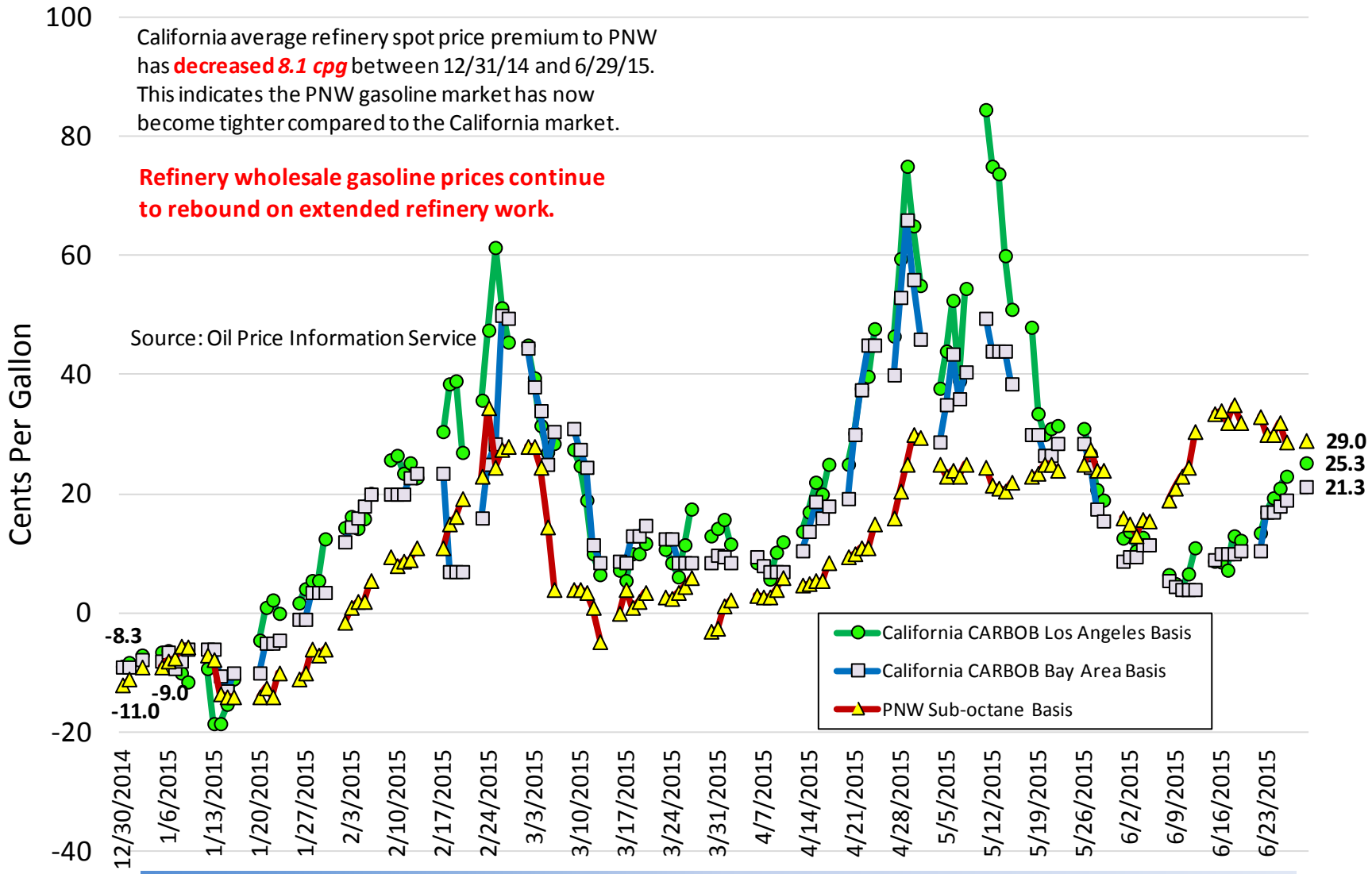
Fuels-Under-the-Cap (FUTC) Tracking

- Fuels-Under-the-Cap regulation went into effect January 1, 2015
- The Oil Price Information Service (OPIS) calculates a value for the FUTC obligation each business day, California Cap-at-the-Rack (CAR)
- Assessment valuation uses price of carbon x carbon intensity of the transportation fuel
  - Winter CARB reformulated gasoline with 10 percent ethanol
  - Summer CARB reformulated gasoline with 10 percent ethanol
  - CARB diesel fuel
- Majority of fuel providers have elected to use the daily OPIS CAR calculation for inclusion in their bills of lading at the distribution terminal
  - Either as a line item or embedded in the price
- Some marketers are calculating their own FUTC assessment and including in the overall price of the fuel

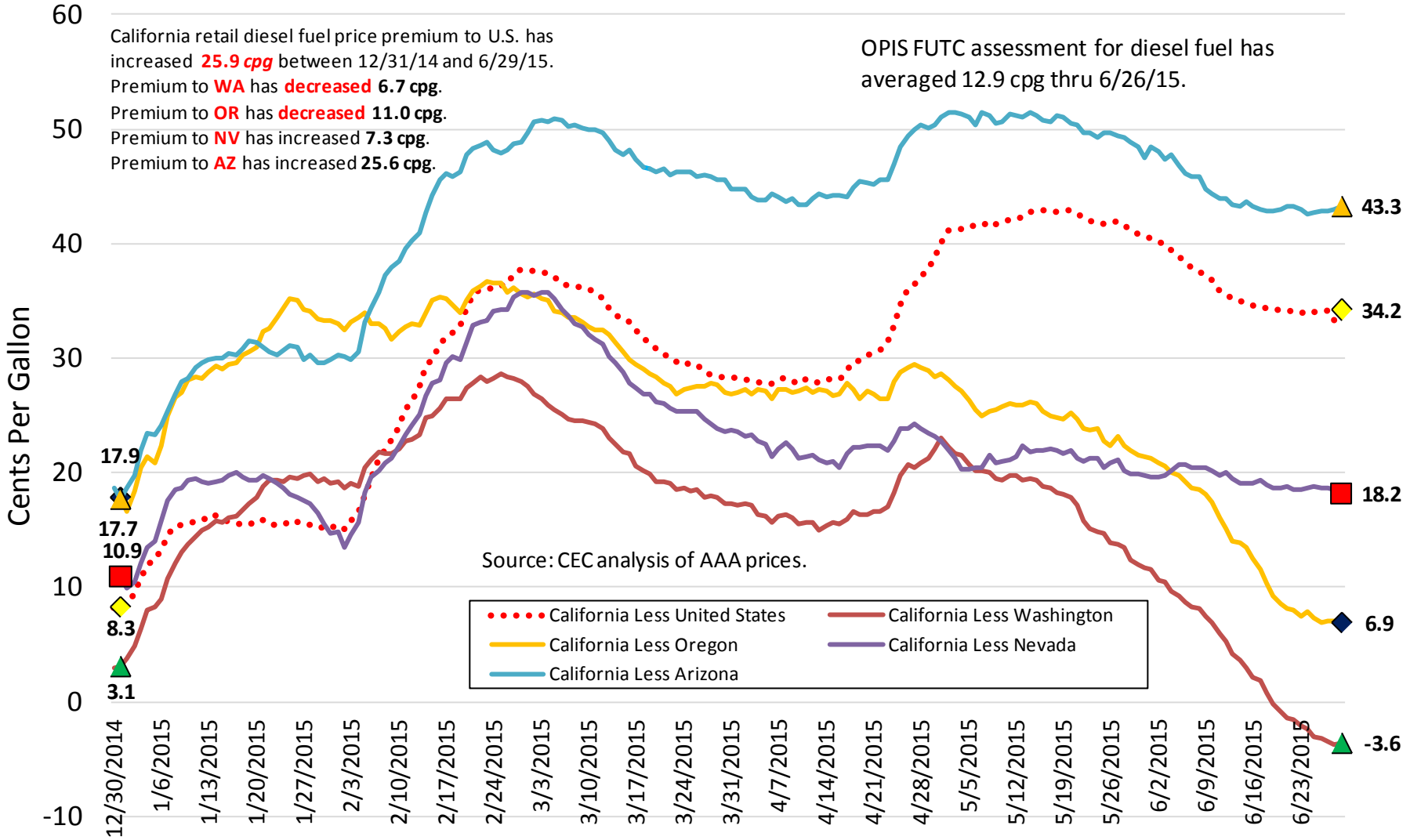
Retail **Gasoline** Price Differences
California vs. United States and Selected States



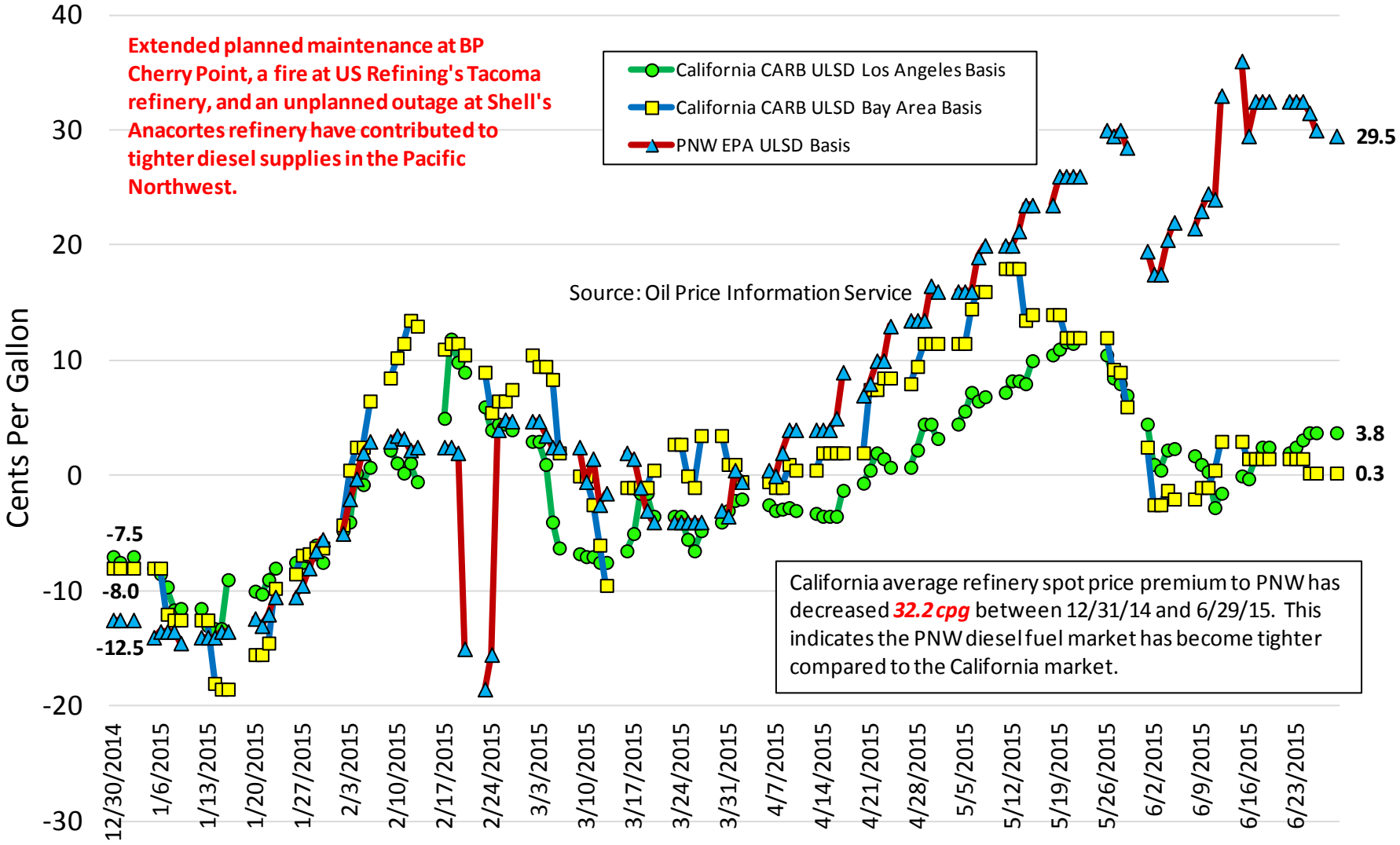
Gasoline Refinery Spot Price Basis
California vs. Pacific Northwest



Retail **Diesel Fuel** Price Differences
California vs. United States and Selected States



Diesel Fuel Refinery Spot Price Basis
California vs. Pacific Northwest



Retail Fuel Price Tracking Observations

- Gasoline
  - From December 31, 2014 to June 29, 2015 the gap between the California retail gasoline price and other Western states increased between **10.8 and 27.1 cents per gallon**
  - The calculated FUTC assessment by OPIS has averaged 10.1 cents per gallon over the same period and lies below the range of increased retail price differential
  - Even greater differentials are attributed to increased tightness in the California gasoline market caused by refinery issues - crude oil prices have also rebounded and stabilized but are not a contributing factor to the retail price differential
- Diesel Fuel
  - From December 31, 2014 to June 29, 2015 the gap between the California retail diesel fuel price and other Western states has ranged between **a decrease of 11.0 and an increase of 25.6 cents per gallon**
  - The calculated FUTC assessment by OPIS has averaged 12.9 cents per gallon over the same period and lies within the range of increased retail price differential

Closing Remarks

- Refinery problems have been significant and sustained during 2015
- These issues have occurred with a backdrop of lower-than normal inventory levels
- Strong price spikes at refinery wholesale level quickly transferred through to distribution terminals and retail
- Very high West Coast gasoline prices attracted imports of gasoline in quantities not seen since 2007
- However, exports of gasoline from California were similar to previous year during March and April
- Sustained higher-than-normal gasoline prices understandable in light of the severe scale of refinery problems
- Return to more normal gasoline pricing levels will likely be delayed until Exxon Mobil resumes gasoline production from their Torrance refinery

Questions?

Sather Gate at U.C. Berkeley, source: berzerkeley.wordpress.com